The Art of Tens,

OR

DECIMALL,

Arithmeticke.

Wherein,

The Art of Arithmeticke

is taught in a moſt exact and perfit method, auoyding the intricacie of *Fractions.*

Exerciſed by HENRY LYTE *Gentleman,*

And by him ſet forth for his Countries good.

LONDON,
Printed by EDWARD GRIFFIN dwelling in the little *Old Bayly* neere the ſigne of the *Kings head.* 1619.

BRITISH MUSEUM

TO THE HIGH *AND MIGHTY* CHARLES, only Sonne of his Maieſtie, Prince of WALES, &c.

SIR,

ENcouraged by your much clemencie, rare vertues, and great learning, I am bold to preſent my poore labours to your Highneſſe gracious view and protection: not that there is any thing therein worthy of a minute of your time, but

for that it contayneth the vſe and explanation of the *Arte of Tens*: a ſubiect not vulgar, and therefore I dare not aduenture it to publike view, till your all-ſufficiencie vouchſafe it approbation and patronage. For which in all dutifull humilitie I ſue to your Highneſſe: beſeeching the Father of all Arts and goodneſſe to heape bleſſings of all ſorts on your Grace in all eternitie.

Your Highneſſes in all dutie to be commanded,

HENRY LYTE.

TO THE READER.

HAuing ſometime, now ten yeeres ſithence (gentle Reader) bin intreated by diuers to publiſh theſe my Exerciſes of Decimall Arithmeticke; ſince which time I haue giuen out diuers Copies, ſome for accounts, ſome for meaſuring and diuiding land into Acres, ſome for meaſuring cloth, glaſſe, boord, timber, &c. and now according to their requeſts, I haue publiſht it in print; doubting not but it will be well accepted of all Practitioners in Arithmetick. For vnderſtanding the few Rules and Tables hereafter ſet downe in this Booke, you ſhall by your owne labour and induſtry, vnderſtand all other Bookes of Arithmetick whatſoeuer, and worke their Rules very eaſily without fractions. And for thoſe that are willing to haue conference with

with me, whilſt that I am in Lon
don, *let them repaire to* Mr Griffins
the Printer of this Booke, and ther
they ſhall heare where I am, wh
will be very willing to explaine an
thing that is contayned within th
Booke. And thus I bid thee hearti
farewell.

Thoſe that would haue eithe
the Yard, or two foote Ruler ma
very well according to the Arte o
Tens, *which Tables for that purpo*
I haue ſet downe in this Booke, l
them repaire to Mr Tomſon, *dwe*
ling in Hoſier Lane, *who mak*
Geometricall Inſtruments.

Wh

What is contained within this booke.

FIrst it sheweth the foure Principles of vulgar Arithmetick, which I haue set down briefly, because it is set downe at large by diuers Authors. Which must be learned perfectly before you can vnderstand that which followeth, with a table to help the working of diuision, deuised by the Author, with the imployment thereof. Secondly, it sheweth the rare vse of the Art of tens, or decimall Arithmeticke; deuised first by the excellent Mathemitian Mr. Simon Steuen: And for the explaining thereof, I haue deuised and translated diuers tables and rules into that art, that any man that hath but a reasonable capacity, may easily vnderstand the whole Art, with great pleasure and profit: and I doubt not the Art being so excellent and so easie to be attained vnto, that most men for their further knowledge will spend some time in attaining thereof: being that any hard question in Arithmeticke, may bee easily resolued without fractions.

For it both helpeth the Land-lord and

Tenant to know their right: For the Marchant and Tradesmen it helpeth them in all their accounts, waits and measures, both superficiall and stereametry, exceeding any rules that euer were taught before: And for the Surueyor and Landmeasurer, they had neuer such helps shewed them: and for the Money-masters and Corne-masters, they shall not deuise the questions, but these rules shal resolue them: And for the Grasier and Farmer, it will shew them how to bestow their monies, and also what they gaine or lose by their commodities. To be short, in all mens affaires both by sea and land, it will be a great help vnto them. And, if God spares mee life, I will spend some time in most Cities in this Land for my Countries good to teach this art. I hold the liuely voyce of a meane speculator somwhat practized, further ten fold more in my iudgement, then the finest writer that is. In the meane time farewell, and take such fruits as this little tree beareth.

Of

Of Arithmeticke.

ARithmeticke is the Art of counting or numbring by figures: and there are foure kindes of numbers: which are these:

1 Digits, as 1. 2. 3. 4. 5. 6. 7. 8. 9.

2 Articles, as 10. 20. 30. 40 50. 60. 70. 80. 90.

3 Mixt or compound, as 11. 24. 36. &c.

4 Members, as 165. 342. 170. 540. 200. 124.

Thousands of Millions	Hundreds of Millions	Tens of Millions	Millions	Hundreds of thou.	Tens of Thous.	Thousands	Hundreds	Tens	Units
									1
								1	2
							1	2	3
						1	2	3	4
					1	2	3	4	5
				1	2	3	4	5	6
			1	2	3	4	5	6	7
		1	2	3	4	5	6	7	8
	1	2	3	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9	0

Likewiſe, by diuiding your numbers into Members, they may bee counted alſo : Example 179804625 431800102413. to know eaſily what this number is, you ſhall finde out how many Members there are in your number, by ſetting behinde euery Member, as you ſee by this Example: 179. 804. 625. 431. 800. 102. 413. then ſhall you beginne to account the firſt Member on the left hand, which is 179. and for euerie pricke ſhall account thouſands : So is your firſt Member 179 thouſand thouſand thouſand thouſand thouſand thouſand : and ſo by the reſt euerie Member to be numbred particularly.

Of the foure ſpeciall kindes or parts of Arithmeticke, which are Addition, Subtraction, Multiplication and Diuiſion.

And firſt of Addition.

ADdition is that which teacheth to bring ſeuerall ſums into one ſum: as it doth appeare by theſe examples,

Numbers giuen	3452673.	79.8065
	2345315.	416.87.4
Summe	5.797.988.	121.4939.

	lib.	lib.	s.	d.
	7	4	2	4
	34.	5	6	9.
Numbers	54. 0	3	5	5
giuen	1006	7	8	3
	243.25	48	19.	10.
	43.000	53	14	06.
	8. 0701	8.4	13.	08
	6.4062	32.	00	04.
	326.03	10	1.0	11.
	4303.4.	22	02	02
	1.2.425	3.2	12	07.
Sum	301. 737.	304	16	9

Of Subtraction.

SHeweth how to take a leſſer number out of a greater, and to ſee what remaineth, as doth appeare by theſe examples.

Lent	9876	Lent	89004532.
Paid	8734	Paid	32541216
Remain.	1142	Remain.	56463316.
Proofe	9876	Proofe	89004532.

	lib.		lib.	—s.	—d.
Lent	40000	Lent	8643	—12	—6
Seuerall payments.	23274 214. 6. 7. 32	paid	5420	—10	—4
		remain.	3223	—02	—2
Sums added	26152	proofe	8643	—12	—6
Remain.	13848				
Proofe	40000				

	lib.	s.	d.		lib.	s.	d.
Lent	84	—10	—4	Lent	2040	—00	—0
Payd	46	—14	—8	payd	1029	—00	—6
Rem.	37	—15	—8	rem:	1010	—19	—6
Proofe	84	—10	—4	proo.	2040	—00	—0

0

Of Multiplication.

IS the producing or bringing forth of a third number; by multiplying to other numbers the one into the other; and it consisteth of three numbers that is the multiplicand: the multiplier and the product.

And before I shew any examples, I thinke it good to set downe *Pythagoras* table of Multiplication: which vnlesse you learne by heart, you shall neuer multiply readily nor quickly, *Example.*

1	2	3	4	5	6	7	8	9
2	4	6	8	10	12	14	16	18
3	9	12	15	18	21	24	27	
4	16	20	24	28	32	36		
5	25	30	35	40	45			
6	36	42	48	54				
7	49	56	63					
8	64	72						
9	81							

The Multiplicand:	422
The Multiplier:	12
The seuerall	844
Products	422
The generall	5064

products or totall sum.

Certaine compendious wayes of Multiplication.

WHen the Multiplier beginneth on the right hand with one cipher, or with many: and endeth on the left hand with the digit 1, as these numbers following, 10, 100, 1000, 10000, &c.

If you haue to multiplie by 10, then haue you no more to doe; but to set downe on the right hand of the number that is to be multiplied, one cipher, if by an 100, then two ciphers; if by a 1000, then three ciphers, &c. As for example, If you will multiplie 365 by 10, then by setting downe on the right hand one cipher, the product will bee 3650; if by 100, the product will bee 36500, &c.

But if the number doe end on the left hand, with any other Digit, as 20, 400, 6000, &c. then you must multiplie the number of the multiplicand; first, by that Digit, and then adde to the end of the product, all the ciphers annexed to the sayd Digit; Example,

multiplie

multiplie 735 by 300, and it will bee 220500.

Of Diuision.

IS that whereby any number is diuided into as many part as you will, and there is to bee remembred fiue rules: First, that you put no number at one time in the quotient aboue 9. Secondly, to moderate your quotient in such sort, as hauing multiplied the first figure of the diuisor by the quotient, there may remaine sufficient for the next figure. Thirdly, that you multiply euerie figure contained in the diuisor by the quotient. Fourthly, that if at ãny time in working: your diuisor is not comprehended in the number ouer his head, then remooue your diuisor one figure further towards the right hand in the first work, then after the first worke for euery remooue: put a cipher in the quotient. Fiftly, to see that the last remainder, if there be any left, doth not exceede in quantitie the diuisor; all which things you shall better vndestand by this Example.

Suppose

Suppose you haue to diuide 819096. by 92. which is performed thus,

	8z	remainder.
	9 3 z | 2	
The Diuidend:	8 x 9 0 9 6 |	8903
The Diuisor	9 z z z 2	quotient.
	9 9 9	

Proofe of Multiplication and Diuision.

THe proofe of Multiplication is to diuide the product by the multiplier, and the quotient will be the multiplicand.

The proofe of Diuision is to multiply the quotient by the diuisor, and the product will be the diuident, adding the remainder, if there be any.

Certaine compendious wayes of Diuision.

NOte if your diuisor bee 10, 100, &c. cut off the last figure or figures of the diuidend, and you haue your desire. Example, Suppose you are

are to diuide 370|8 by 10, cut off the laſt figure 8 with a daſh, as you ſee before, and the remainder ſhall be 8, and the quotient 370.

Againe, if you will diuide 37|08 by a 100, then cut off two of the laſt figures, and the remainder will bee 08 and the quotient 37. & ſo of all others:

Againe, ſuppoſe your diuiſor bee any number that hath ciphers before; let the figure ſtand with the ciphers thus $\frac{9843201(}{2\quad 00}$ then diuide as before, and the figure wilbe thus x x

9843201(49216
zzzz00

Note that 1 is neither multiplied nor diuided in the vulgar Arithmetick; But in the art of Tens it is, as ſhall heereafter appeare.

Note alſo, if you will haue the halfe of any thing, Diuide it by 2, and the quotient is your deſire, and ſo by anie third part or fourth part, and ſo of all others.

Heere

Heere followeth a table to help to diuide.

EXample, Suppose 351274 is to be diuided into 39 parts, then must you finde 39 your diuisor, in the margent of your table, and against 39 you shall find out the number that will neerest eat out your diuisor, & look in what colume you finde that number; take that for your first figure in your quotient, as in this figure 351274(9
plainely appeareth, 39
that you may find your diuidend 351 in the ninth colume of your table; therefore 9 shall bee the first figure in the quotient; So in this manner may you finde out any quotient number, whose diuisor is but one or two figures.

Other helps by this table.

Suppose your Diuisor to bee 990, and your diuidend 89974000, then set your figure in 99 0, this forme:
then finde 99 in your table, and worke as before.

And so by the same reason may you

finde out the quotient of a ie diuiſor, finding out the firſt two figures on the left hand of the diuiſor in your table; as in this Example I muſt finde how manie times 89 there is in 754, which my table ſheweth 8 times: which 8 I place in my quotient, and worke as you ſee: then I place my deuiſor againe, and looke a new quotient which I finde in my table to be 4, as you ſee in this figure: So I find 8944 in 754672 84 times, & 3376 remaines, This anie learner, by the help of this table, may learne to diuide eaſilie.

754672(8
89.44
3
491
xx245
754672(8
8944
33
3375|7
4918|
xx245|6
754672(84
89444
884

Heere followeth the art of Tens, or Decimall Arithmeticke.

FIrſt you muſt know the ſignes that belongeth to the Art: which are theſe: For euerie whole thing or number

ber is called a commencement, and is marked this (o) and euerie vnite of a commencement being diuided into ten parts are called primes, and are marked thus (1) and euerie vnite of a prime being diuided into ten parts, are called ſeconds, and are marked thus (2) and ſo forth infinite as the matter requireth. (o) (1) (2) (3) (4)

As for example 1 3 5 5 6 7 8. which numbers are $_{135}{}^{(o)}$ or whole numbers $_{5}{}^{(1)}$ or fiue ten parts $_{6}{}^{(2)}$ or ſix hundreth parts $_{7}{}^{(3)}$ or ſeuen thouſand parts $_{8}{}^{(4)}$ or eight ten thouſand parts of the vnite of a commencement, &c. Note alſo when you ſee any number ſtand in this manner $_{1632}{}^{(3)}$ with his laſt ſigne, you muſt vnderſtand that by the laſt ſigne, al the reſt are known by their orderly proceeding, as in this Example $_{1\ 6\ 3\ 2}{}^{(o)\ (1)\ (2)\ (3)}$ you may plainely perceiue. Note alſo if there want ſome ſignes of their naturall order: the place of the defectant ſhall bee filled, as in this example $_{3\ 4\ 5}{}^{(o)\ \ \ (3)}$ there want (1) and (2) of their orderly proceeding: therfore it muſt be ſet downe thus $_{34003}{}^{(3)}$. This aduertiſement ſhall alſo ſerue in the

the foure propoſitions following: Beſides theſe inſtructions, reſort you to my tables heereafter ſhewed in this booke, and they will ſhew you moſt plainely the meaning of theſe Decimall numbers.

1 *Of Addition Decimall.*

IN Addition and Subtraction you ſhall carefully place commencements vnder commencements, primes vnder primes, &c, as in this example. Then haue you nothing to doe, but to worke after the vulgar manner: placing the ſigne of the numbers giuen to the ſumme totall: as you ſee in this example.

	(3)
	34005
	5,102
	24000
	38793
	149900(3)

Note alſo that when you finde any ciphers on the right hand of any number that are not commencements, you need not reckon of them, nor of their ſignes: as in the totall ſumme of this laſt example, which is 149900(3) which for breuities ſake you ſhall ſay

say 1499(1) which is all one, as heere-after shall often appeare.

2. *Of Subtraction Decimall.*

YOu shall in Subtraction alwaye make the signes of the greater sum (if they are not) as great as the signes of the lesser, then shall you worke after the vulgar manner thus. Example

l.		l.	s.	l.
40 lent.	receiued	34	5	4000(2)
	l.	s.		3425 l.
remaine vnpaid	5	15		575(2)

3. *Of Multiplication Decimall.*

IN Multiplication you must worke as you doe in the vulgar Arithmeticke. But you must adde the signes of the multiplicand, and the signes of the multiplier together, and it shall be the signes of the product, as you may see in these Examples:

Multiplicand	$456^{(2)}_{4}$	Multiplicand	546(3)
Multiplier	5(1)	Multiplier	4(0)
product	22820(3)	product	2184(3)

Of

	1	2	3	4	5	6	7	8	9
	2	4	6	8	10	12	14	16	18
	3	6	9	12	15	18	21	24	27
	4	8	12	16	20	24	28	32	36
	5	10	15	20	25	30	35	40	45
	6	12	18	24	30	36	42	48	54
	7	14	21	28	35	42	49	56	63
	8	16	24	32	40	48	56	64	72
	9	18	27	36	45	54	63	72	81
10	10	20	30	40	50	60	70	80	90
	11	22	33	44	55	66	77	88	99
	12	24	36	48	60	72	84	96	108
	13	26	39	52	65	78	91	104	117
	14	28	42	56	70	84	98	112	126
	15	30	45	60	75	90	105	120	135
	16	32	48	64	80	96	112	128	144
	17	34	51	68	85	102	119	136	153
	18	36	54	72	90	108	126	144	162
	19	38	57	76	95	114	133	152	171
20	20	40	60	80	100	120	140	160	180
	21	42	63	84	105	126	147	168	189
	22	44	66	88	110	132	154	176	198
	23	46	69	92	115	138	161	184	207
	24	48	72	96	120	144	168	192	216
	25	50	75	100	125	150	175	200	225
	26	52	78	104	130	156	182	208	234
	27	54	81	108	135	162	189	216	243
	28	56	84	112	140	168	196	224	252
	29	58	87	116	145	174	203	232	261
30	30	60	90	120	150	180	210	240	270
	31	62	93	124	155	186	217	248	279
	32	64	96	128	160	192	224	256	288
	33	66	99	132	165	198	231	264	297
	34	68	102	136	170	204	238	272	306
	35	70	105	140	175	210	245	280	315
	36	72	108	144	180	216	252	288	324
	37	74	111	148	185	222	259	296	333
	38	76	114	152	190	228	266	304	342
	39	78	117	156	195	234	273	312	351
40	40	80	120	160	200	240	280	320	360
	41	82	123	164	205	246	287	328	369
	42	84	126	168	210	252	294	336	378
	43	86	129	172	215	258	301	344	387
	44	88	132	176	220	264	308	352	396
	45	90	135	180	225	270	315	360	405
	46	92	138	184	230	276	322	368	414
	47	94	141	188	235	282	329	376	423
	48	96	144	192	240	288	336	384	432
	49	98	147	196	245	294	343	392	441
50	50	100	150	200	250	300	350	400	450

	51	102	153	204	255	306	357	408	459
	52	104	156	208	260	312	364	416	468
	53	106	159	212	265	318	371	424	477
	54	108	162	216	270	324	378	432	486
	55	110	165	220	275	330	385	440	495
	56	112	168	224	280	336	392	448	504
	57	114	171	228	285	342	399	456	513
	58	116	174	232	290	348	406	464	522
	59	118	177	236	295	354	413	472	531
60	60	120	180	240	300	360	420	480	540
	61	122	183	244	305	366	427	488	549
	62	124	186	248	310	372	434	496	558
	63	126	189	252	315	378	441	504	567
	64	128	192	256	320	384	448	512	576
	65	130	195	260	325	390	455	520	585
	66	132	198	264	330	396	462	528	594
	67	134	201	268	335	402	469	536	603
	68	136	204	272	340	408	476	544	612
	69	138	207	276	345	414	483	552	621
70	70	140	210	280	350	420	490	560	630
	71	142	213	284	355	426	497	568	639
	72	144	216	288	360	432	504	576	648
	73	146	219	292	365	438	511	584	657
	74	148	222	296	370	444	518	592	666
	75	150	225	300	375	450	525	600	675
	76	152	228	304	380	456	532	608	684
	77	154	231	308	385	462	539	616	693
	78	156	234	312	390	468	546	624	702
	79	158	237	316	395	474	553	632	711
80	80	160	240	320	400	480	560	640	720
	81	162	243	324	405	486	567	648	729
	82	164	246	328	410	492	574	656	738
	83	166	249	332	415	498	581	664	747
	84	168	252	336	420	504	588	672	756
	85	170	255	340	425	510	595	680	765
	86	172	258	344	430	516	602	688	774
	87	174	261	348	435	522	609	696	783
	88	176	264	352	440	528	616	704	792
	89	178	267	356	445	534	623	712	801
90	90	180	270	360	450	540	630	720	810
	91	182	273	364	455	546	637	728	819
	92	184	276	368	460	552	644	736	828
	93	186	279	372	465	558	651	744	837
	94	188	282	376	470	564	658	752	846
	95	190	285	380	475	570	665	760	855
	96	192	288	384	480	576	672	768	864
	97	194	291	388	485	582	679	776	873
	98	196	294	392	490	588	686	784	882
	99	198	297	396	495	594	693	792	891
100	100	200	300	400	500	600	700	800	900

4. Of Diuision Decimall.

IN Diuision you must subtract the signes of the diuisor from the signes of the diuidend, and the remainder shall bee the signes of the quotient, as in these examples:

Diuidend $(2)^{2}\ 5\ 4\ 0\ 4\ (1\ 8\ 0\ 1^{(2)}$ $(0)\ \frac{1\bullet}{2}\ (5^{(1)}$

Diuisor $(0)\ 3\ 3\ 3\ 3$

Note that you alwaies make the signes of the Diuidend by working as great as the signes of the diuisor, and if there bee any remainder that you would haue wrought lesse, you must make them greater, which must bee done, as the last Example sheweth, which was $1^{(0)}$ diuided by $2^{(0)}$ which is done by adding one cypher, as is shewed before. Note also that for euery new increase in your Diuidend, that you set a blancke thus ● to know how many you doe increase, that you may be sure to giue a right signe to the quotient, that for euerie place that you do increase, you must increase a signe also, as you see in the last example, and the

quotient is $5^{(1)}$ which is the halfe o
the vnite of a commencement. If you would haue the quarter of any thin
you must diuide $1^{(0)}$ by $4^{(0)}$ or int
foure parts, and the quotient will be a
is shewed in the last Example $23^{(2)}$.

```
        2        (2)
(0) 1●●(25
(0) 44
```

If you would haue the halfe quarter of any thing, you must diuide $1^{(0)}$ by $8^{(0)}$
or into eight parts, and the quotien
will be $125^{(3)}$, which numbers I hau
set heere in this table. For if you wi
set downe any thing by wait, time
measure, money, or any thing else
By this Art of tens you must set
downe, as this table sheweth: Exam
ples, Suppose you will set downe te
pound and an halfe, you must first se
downe $10^{(0)}$, and adde vnto that $5^{(1)}$
and it will bee this $105^{(1)}$, and so fo
foure bushels and a quarter thus $425^{(1)}$

```
        24       (3)
(0) 1●●●(125
(0) 888
```

*This Table sheweth the decimall setti
down of any thing by the half quarter, &
and especially for the bushell of 32 quart
and the pound-wait at 16 ounces.*

Fro

From the halfe bushell to the halfe pinte:
And from the halfe pound to the Dram.

	bushell.	*lib. wayte.*	signes 1	2	3	4	5	6	7
The halfe of any thing is (1).	halfe a bushell 16 qrts	halfe a pound or 8 ounces.	5						
The quarter of any thing is 25 (2).	a peck or 8 quarts.	a qr of a pound or 4 ounces	2	5					
The half qu. of any thing is 125 (3).	halfe a peck or 4 qrts.	halfe a quar. or 2 ounces	1	2	5				
The halfe halfe qr. of any thing is 625 (4).	two quarts.	1 ounce.		6	2	5			
	one quart.	halfe an ounce, or 4 drams.		3	1	2	5		
	1 pinte	2 drams.		1	5	6	2	5	
	halfe a pinte.	1 dram.			7	8	1	2	5

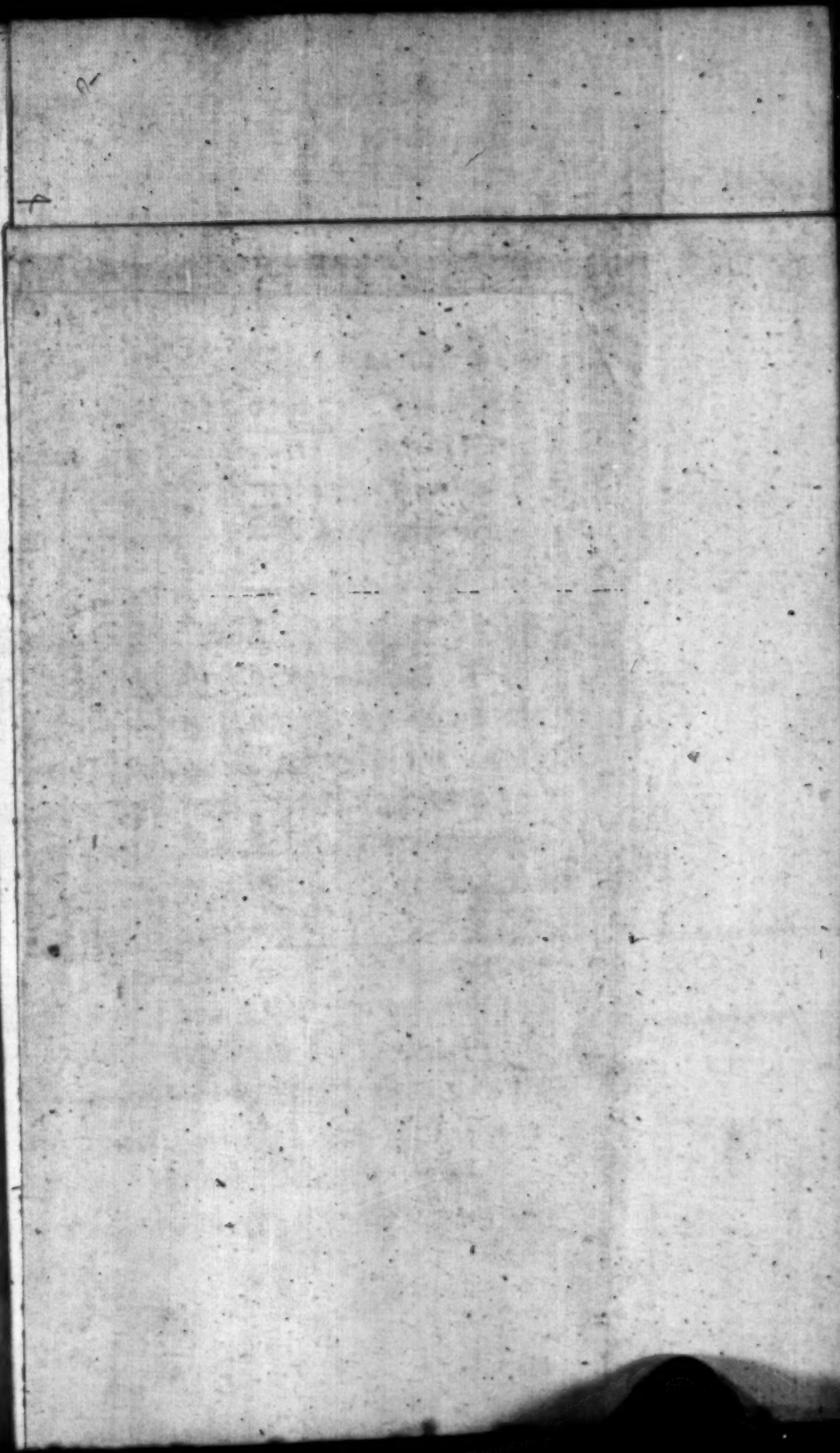
Now for your money accounts and other meaſures: as the foot, yard, and perch, &c. although this table ſheweth howto ſet down the half quarter, &c, of any of them: yet you ſhall haue tables that ſhall concerne them particularly.

Here followeth a table which ſheweth how to diuide the perch, ell, yard, or foot, according to this art of tens, and alſo on the other ſide of the whipped line, it ſheweth the ſuperficiall ſquare of any of them.

WHat inſtrument you haue occaſion to vſe, you ſhall firſt diuide into ten equall parts, which are called primes, and are marked thus (1) as is taught before: And euerie prime into ten equall parts, which are called ſeconds, and are marked thus (2) which diuideth the inſtrument into 100 parts, all which you may ſee in the table on the left hand of the whipped line; and vpon the other ſide of the whipped line, you ſhall finde vpon euerie Diuiſion or part, what will make it ſquare, that whenſoeuer you will meaſure anie thing, your inſtrument

Place heere the table marked thus, ☞

being



A Table that sheweth how to lay out land by the acre, of what denomination soeuer the perch is on.

FIrst you must haue your perch diuided into primes, seconds and thirds, as you see in the figure A. B. then shall you measure the length of your land, the same number of perches you finde in the table in the left side of the whipped line: and the number directly against it, is what breadth you shall haue to make an acre. Example, Suppose you measure a peice of land, whose length is 50(0) or perches, then finde 50(0) in the left side of your table: and on the other side of the whipped line you shall finde your breadth to be 32(1) which makes an acre: and so of all others betwixt 1 perch and 80 perch.

Quest.	Answ. (0)	(1)	(2)	(3)
1	160			
2	80			
3	53	3	3	3
4	40			
5	32			
6	24	4	4	4
7	22	8	5	7
8	20			
9	17	7	7	8
10	16			
11	14	5	4	6
12	13	3	3	3
13	12	3		8
14	11	4	2	9
15	10	6	6	7
16	10			
17	9	4	1	2
18	8	8	8	9
19	8	4	2	1
20	8			
21	7	6	1	9
22	7	2	7	3
23	6	9	5	6
24	6	6	6	7
25	6	4		
26	6	1	6	2
27	5	9	2	6
28	5	7	1	4
29	5	5	1	7
30	5	3	3	3
31	5	1	6	1
32	5			
33	4	8	4	8
34	4	7	0	6
35	4	5	7	1
36	4	4	4	4
37	4	3	2	4
38	4	2	1	1
39	4	1		3
40	4			

Quest.	Answ. (0)	(1)	(2)	(3)
41	3	9		2
42	3	8	1	
43	3	7	2	1
44	3	6	3	6
45	3	5	5	6
46	3	4	8	7
47	3	4		4
48	3	3	3	3
49	3	2	6	5
50	3	2		
51	3	1	3	6
52	3		7	6
53	3		1	9
54	2	9	6	3
55	2	9		9
56	2	8	5	7
57	2	8		7
58	2	7	5	9
59	2	7	1	2
60	2	6	6	7
61	2	6	2	3
62	2	5	8	1
63	2	5	3	9
64	2	5		
65	2	4	5	9
66	2	4	2	4
67	2	3	8	8
68	2	3	5	3
69	2	3	1	9
70	2	2	8	7
71	2	2	5	3
72	2	2	2	2
73	2	1	9	2
74	2	1	6	2
75	2	1	3	3
76	2	1		5
77	2		7	8
78	2		5	1
79	2		2	5
80	2			

A (3) 10 1 2 3 4 5 6 7 8 9 0 (2)
I 2 3 4 5 6 7 8 9 10 (1)
B

The first.

Queſt.	Anſw.	Queſt.	Anſw.
(0)(1)(2)	(0)(1)(2)	(0)(1)(2)	(0)(1)(2)
1 | | 1	| | 1	| 5 | 1	1 | 9 | 6
| | 2	50 | |	| 5 | 2	1 | 9 | 2
| | 3	33 | 3 | 3	| 5 | 3	1 | 8 | 8
| | 4	25 | |	| 5 | 4	1 | 8 | 5
| | 5	20 | |	| 5 | 5	1 | 8 | 2
| | 6	16 | 6 | 6	| 5 | 6	1 | 7 | 8
| | 7	14 | 2 | 8	| 5 | 7	1 | 7 | 5
| | 8	12 | 5 |	| 5 | 8	1 | 7 | 2
| | 9	11 | 1 | 1	| 5 | 9	1 | 6 | 9
1 | 1 | 0	10 | |	6 | 6 | 0	1 | 6 | 6
| 1 | 1	9 | | 9	| 6 | 1	1 | 6 | 4
| 1 | 2	8 | 3 | 3	| 6 | 2	1 | 6 | 1
| 1 | 3	7 | 6 | 9	| 6 | 3	1 | 5 | 8
| 1 | 4	7 | 1 | 3	| 6 | 4	1 | 5 | 6
| 1 | 5	6 | 6 | 6	| 6 | 5	1 | 5 | 4
| 1 | 6	6 | 2 | 5	| 6 | 6	1 | 5 | 1
| 1 | 7	5 | 8 | 8	| 6 | 7	1 | 4 | 9
| 1 | 8	5 | 5 | 5	| 6 | 8	1 | 4 | 6
| 1 | 9	5 | 2 | 6	| 6 | 9	1 | 4 | 5
2 | 2 | 0	5 | |	7 | 7 | 0	1 | 4 | 3
| 2 | 1	4 | 7 | 6	| 7 | 1	1 | 4 | 1
| 2 | 2	4 | 5 | 4	| 7 | 2	1 | 3 | 9
| 2 | 3	4 | 3 | 4	| 7 | 3	1 | 3 | 7
| 2 | 4	4 | 1 | 6	| 7 | 4	1 | 3 | 5
| 2 | 5	4 | |	| 7 | 5	1 | 3 | 3
| 2 | 6	3 | 8 | 4	| 7 | 6	1 | 3 | 1
| 2 | 7	3 | 7 |	| 7 | 7	1 | 3 |
| 2 | 8	3 | 5 | 7	| 7 | 8	1 | 2 | 8
| 2 | 9	3 | 4 | 5	| 7 | 9	1 | 2 | 6
3 | 3 | 0	3 | 3 | 3	8 | 8 | 0	1 | 2 | 5
| 3 | 1	3 | 2 | 2	| 8 | 1	1 | 2 | 3
| 3 | 2	3 | 1 | 2	| 8 | 2	1 | 2 | 2
| 3 | 3	3 | 0 | 3	| 8 | 3	1 | 1 | 9
| 3 | 4	2 | 9 | 4	| 8 | 4	1 | 1 | 8
| 3 | 5	2 | 8 | 5	| 8 | 5	1 | 1 | 7
| 3 | 6	2 | 7 | 7	| 8 | 6	1 | 1 | 6
| 3 | 7	2 | 7 |	| 8 | 7	1 | 1 | 5
| 3 | 8	2 | 6 | 3	| 8 | 8	1 | 1 | 3
| 3 | 9	2 | 5 | 6	| 8 | 9	1 | 1 | 2
4 | 4 | 0	2 | 5 |	9 | 9 | 0	1 | 1 | 1
| 4 | 1	2 | 4 | 4	| 9 | 1	1 | 1 |
| 4 | 2	2 | 3 | 8	| 9 | 2	1 | 0 | 8
| 4 | 3	2 | 3 | 2	| 9 | 3	1 | | 7
| 4 | 4	2 | 2 | 7	| 9 | 4	1 | | 6
| 4 | 5	2 | 2 | 2	| 9 | 5	1 | | 5
| 4 | 6	2 | 1 | 7	| 9 | 6	1 | | 4
| 4 | 7	2 | 1 | 2	| 9 | 7	1 | | 3
| 4 | 8	2 | | 8	| 9 | 8	1 | | 2
| 4 | 9	2 | | 5	1 | 0 | 0	1 | | 1
5 | 5 | 0	2 | |		1 | |

The second.

Queſt.	Anſw.	Queſt.	Anſw.
(0)(1)(2)	(0)(1)(2)	(0)(1)(2)	(0)(1)(2)
1 | 0 | 1	| 9 | 9	1 | 5 | 1	| 6 | 6
1 | 0 | 2	| 9 | 8	1 | 5 | 2	| 6 | 6
1 | 0 | 3	| 9 | 7	1 | 5 | 3	| 6 | 5
1 | 0 | 4	| 9 | 6	1 | 5 | 4	| 6 | 5
1 | 0 | 5	| 9 | 5	1 | 5 | 5	| 6 | 4
1 | 0 | 6	| 9 | 4	1 | 5 | 6	| 6 | 4
1 | 0 | 7	| 9 | 3	1 | 5 | 7	| 6 | 3
1 | 0 | 8	| 9 | 2	1 | 5 | 8	| 6 | 3
1 | 0 | 9	| 9 | 1	1 | 5 | 9	| 6 | 3
1 | 1 | 0	| 9 | 1	1 | 6 | 0	| 6 | 2
1 | 1 | 1	| 9 |	1 | 6 | 1	| 6 | 2
1 | 1 | 2	| 8 | 9	1 | 6 | 2	| 6 | 1
1 | 1 | 3	| 8 | 8	1 | 6 | 3	| 6 | 1
1 | 1 | 4	| 8 | 7	1 | 6 | 4	| 6 | 1
1 | 1 | 5	| 8 | 7	1 | 6 | 5	| 5 |
1 | 1 | 6	| 8 | 6	1 | 6 | 6	| 6 |
1 | 1 | 7	| 8 | 5	1 | 6 | 7	| 6 |
1 | 1 | 8	| 8 | 4	1 | 6 | 8	| 5 | 9
1 | 1 | 9	| 8 | 4	1 | 6 | 9	| 5 | 9
1 | 2 | 0	| 8 | 3	1 | 7 | 0	| 5 | 8
1 | 2 | 1	| 8 | 2	1 | 7 | 1	| 5 | 8
1 | 2 | 2	| 8 | 2	1 | 7 | 2	| 5 | 8
1 | 2 | 3	| 8 | 1	1 | 7 | 3	| 5 | 7
1 | 2 | 4	| 8 |	1 | 7 | 4	| 5 | 7
1 | 2 | 5	| 8 |	1 | 7 | 5	| 5 | 7
1 | 2 | 6	| 7 | 9	1 | 7 | 6	| 5 | 6
1 | 2 | 7	| 7 | 8	1 | 7 | 7	| 5 | 6
1 | 2 | 8	| 7 | 8	1 | 7 | 8	| 5 | 6
1 | 2 | 9	| 7 | 7	1 | 7 | 9	| 5 | 6
1 | 3 | 0	| 7 | 6	1 | 8 | 0	| 5 | 5
1 | 3 | 1	| 7 | 6	1 | 8 | 1	| 5 | 5
1 | 3 | 2	| 7 | 5	1 | 8 | 2	| 5 | 5
1 | 3 | 3	| 7 | 5	1 | 8 | 3	| 5 | 4
1 | 3 | 4	| 7 | 4	1 | 8 | 4	| 5 | 4
1 | 3 | 5	| 7 | 4	1 | 8 | 5	| 5 | 4
1 | 3 | 6	| 7 | 3	1 | 8 | 6	| 5 | 4
1 | 3 | 7	| 7 | 3	1 | 8 | 7	| 5 | 3
1 | 3 | 8	| 7 | 2	1 | 8 | 8	| 5 | 3
1 | 3 | 9	| 7 | 2	1 | 8 | 9	| 5 | 3
1 | 4 | 0	| 7 | 1	1 | 9 | 0	| 5 | 2
1 | 4 | 1	| 7 | 1	1 | 9 | 1	| 5 | 2
1 | 4 | 2	| 7 |	1 | 9 | 2	| 5 | 2
1 | 4 | 3	| 7 |	1 | 9 | 3	| 5 | 2
1 | 4 | 4	| 6 | 9	1 | 9 | 4	| 5 | 1
1 | 4 | 5	| 6 | 9	1 | 9 | 5	| 5 | 1
1 | 4 | 6	| 6 | 8	1 | 9 | 6	| 5 | 1
1 | 4 | 7	| 6 | 8	1 | 9 | 7	| 5 | 1
1 | 4 | 8	| 6 | 7	1 | 9 | 8	| 5 |
1 | 4 | 9	| 6 | 7	1 | 9 | 9	| 5 |
1 | 5 | 0	| 6 | 6	2 | 0 | 0	| 5 |

eing thus prepared, as you ſee in the ble, you haue no more to doe, but o laie it ouer the thing that you would nea ſure, and as your bredth doth fall out, it will ſhew you your length.

Example: Suppoſe I meaſure anie hing by the yard that is in bredth 8(1), which 8(1) I finde in the margin of the irſt yard on the left hand of the whip-ed line, and direct lie on the other ide ſhall you finde the length, to make ſquare yard to be 125(2).

Againe, ſuppoſe you would mea-ure anie thing by the foot, whoſe redth is 111(2), which you muſt finde n the margine of the ſecond foot, and nd in the other ſide is 9(1), and thus nay a man finde the ſuperficiall ſquare f anie thing moſt exactlie.

Likewiſe may you finde the ſtiro-netrie or ſquare of anie thing by the oreſaid table, and the helpe of this li-e table:

margin.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
	3	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60
		4	16	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80
			5	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
				6	36	42	48	54	60	66	72	78	84	90	96	102	108	114	120
					7	49	56	63	70	77	84	91	98	105	112	119	126	133	140
						8	64	72	80	88	96	104	112	120	128	136	144	152	160
							9	81	90	99	108	117	126	135	144	153	162	171	180
								10	100	110	120	130	140	150	160	170	180	190	200

margin

As by Example, Suppose a peece f timber is to bee measured, whose redth is 9(1), and his depth is 13(1), this and 13 you must finde in the margins of the table of multiplication, and their common meeting you shall nde 117, this number you shall finde n the other table, in the left side of he whipped line, and directly against you shall finde 85(2), which makes he length of your square ftr. in your imber.

Note that these tables are most excellent to set vpon the two-foot uler for Tradesmen: and the first able for the Marchant and Taylor o bee ingrauen vpon their yards: hat vpon any action knowing how many yards of yard-broad will serue or any vse, they may straight serue heir turne with the help of that yard, of what bredth soeuer their stuffe be: nder two yard-brod: as is shewed before.

Place heere the table marked thus, ☒

How to diuide land into acres, of what denomination soeuer the perch is on, you shall finde in this Table.

Heere followeth two tables of Decimal accounts for money.

THe first table sheweth what part of a pound, 3 farthings, 3 halfe-pence, 3 pence, 6 pence, and 12 pence is.

The second table beginneth with 2ˢ, and endeth with 18, by the which tables there is no number decimall, but you may set downe to a farthing from thousands that are aliquot to these tables.

The first table.

d	ob	far	(2)	(3)	(4)	(5)	
		3		3	1	2	5
	3			6	2	5	
3			1	2	5		
6			2	5			
12			5				

Note that any number that endeth with one farthing, one halfe-peny, one 1ᵇ. one 2ᵇ. one 4ᵇ. &c. are not euen or aliquot to these tables; therfore shall you haue a rule of purpose to work those vneuen numbers; But first I will shew an example of the aliquot numbers: Suppose I haue bought 100 yards of veluet at 23ˢ 4ᵇ halfe-peny the yard

yard. I demand how that sum is to be set downe, and also what the 100 yards must cost.

s	(1)
2	1
4	2
6	3
8	4
10	5
12	6
14	7
16	8
18	9

The second Table.

Answ. You must first translate all your seuerall denominations into pounds and parts of pounds thus, set $1^{(0)}$ l. for one pound with as many ciphers and their signes, as the least denomination doth require: and so for the rest, as is shewed in the next Example. Then for 3^{s} I finde in my first table $5^{(2)}$ for 12^{s}, and $1^{(1)}$ for 2^{s} in my second table: then for 4^{s} halfe-peny, I finde 5^{s} in my first table to be $125^{(4)}$ & 3 halfe-pence to be $625^{(5)}$.

Which decimall numbers being added together, is as you see $116875^{(5)}$ l.

Then if you would haue ten times that number, an hundred times that number, or a thousand times that number, &c. as in our example; I demand what is a hundred

(1)(2)(3)(4)(5) l.
100000
10000
5000
1250
625
116875 (5)

hundred times 116875(5). To anſwer that there is no more to do but to adde two ciphers to that number, & to the latter cipher giue the ſigne that the number had before, and the figure will bee this 11687500(5)l, which ſheweth that I muſt giue 116l. 9s. 6d. and ſo much a 100 times 23s. 4d. half-peny is.

Otherwiſe, as is ſhewed in a rule before in addition decimall, take away the two ciphers and their ſignes, and the ſumme will be 116875(3) which is all one.

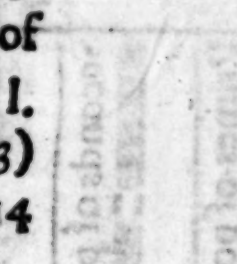
Likewiſe if you would haue 1000 times 23s. 4d. half-peny, then muſt the laſt ſigne be (2) and the ſumme will be 116875(2) which is 1168l. 15s., and ſo much is 1000 yards of veluet worth, at 23s. 4d. halfe-penny the yard.

Heere followeth a table of account for money, that what Decimall number ſoeuer is wrought by diuiſion, or otherwiſe is to be found in this table: which table is diuided into four columnes: the firſt columne ſhewes what primes of pounds are, the ſecond ſheweth what ſeconds of pounds are, the third ſheweth what

thirds

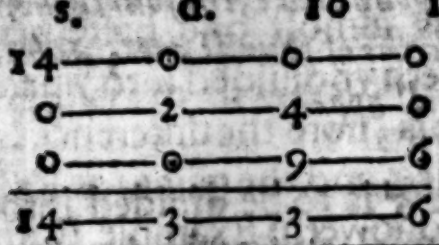
thirds of pounds are, the fourth sheweth what fourths of pounds are; as by Example shall appeare:

SVppose 5l is to be diuided into seuen parts, I demand what sum of money one seuenth part of 5l comes vnto: which this figure sheweth it to bee 714(3) and 2(3) remaines: now the question is to know how much the quotient 714(3) of lib. comes to, & also the remainder 2(3) of lib. which is done thus.



First finde out what 7(2) come vnto, which the table sheweth 14s, then seek what 1(2) comes vnto, this table sheweth 2d & foure ten parts of a peny, then seeke out what 4(3) comes vnto, which this table sheweth 9 ten parts and 6. 100 parts of a peny, which being added together, comes vnto 14s 3d & 3 ten parts of a peny, as is heere vnder set downe.

14s.



Primes of pounds.		Seconds of pounds			Thirds of pounds.			Fourths of pounds			
(1)	s.	(2)	s.	d.	10 p.	(3)	d.	10 p.	100 p.	(4)	10 p.	100 p.	1000 p.
1	2	1		2	4	1		2	4	1		2	4
2	4	2		4	8	2		4	8	2		4	8
3	6	3		7	2	3		7	2	3		7	2
4	8	4		9	6	4		9	6	4		9	6
5	10	5	1			5	1	2		5	1	2	
6	12	6	1	2	4	6	1	4	4	6	1	4	4
7	14	7	1	4	8	7	1	6	8	7	1	6	8
8	16	8	1	7	2	8	1	9	2	8	1	9	2
9	18	9	1	9	6	9	2	1	6	9	2	1	6

Besides I finde the remainder 2(3) to be

be 4 ten parts, and 8, 100 parts of a peny, which is almoſt one halfe-peny that remaineth vndiuided into 7 parts.

The rule is; note the difference betwixt the price, and the gaine, or loſſe, then ſay as followeth: Example, Butter bought at 3ᵇ the pound wait, and retailed at a halfe-peny gaine or loſſe vpon the pound wait. I demand what is gained and loſt by ſhillings and pounds. *Anſw.* If 3ᵇ gaines or loſeth one halfe-peny, 3ˢ gaines or loſeth halfe a ſhilling, 3ˡ gaineth or loſeth half a pound, or 10ˢ; 300ˡ loſeth or gaineth halfe an hundred, or 50ˡ, 3000ˡ loſeth or gaineth halfe a thouſand or 500ˡ, &c. *Market rule, and the rule of 3.*

Note alſo that you may reckon the price and the gaine or loſſe together: Example, Suppoſe Barly is bought for 10 groats the buſhell, & ſold again for for 12 groats 2ᵇ, then ſay, if 10 groats gaines (principall and gaines) 12 groats and halfe, 10ˢ gaines 12ˢ & halfe; 10ˡ pound gaines 12ˡ and halfe; principall and gaine, &c.

Againe, wheat is bought at *Dublin* at 8 gallons the buſhell, and ſold againe at *Beawmaries* for 10 gallons to the

bushell. I demand what is lost vpon the bushels, barrels, and tuns, &c.

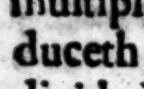
Answ. If 8 loseth 2, or 4 loseth 1 bushell, which is all one; 4 barels loseth one, 4 tun loseth one tun, &c.

The rule of 3.

THere is 3 things to be considered vpō the rule of 3. The first is when three numbers are propounded, what the fourth shall bee, which is thus knowne. Multiplie the third question by the second; and diuide the product thereof by the first question, and the quotient shall be the fourth number.

Secondly, that the first question must alwaies be the diuisor.

Thirdly, that the first and the third question bee alwayes of one likenesse or semblance, and so likewise the second and the fourth question: All which is shewed in this figure, if you multiply 4 by 4, produceth 16, which 16 diuided by two, the quotient wilbe 8.



Rules of practise vpon the rule of 3.

THere is three diuers wayes to bee wrought by the ordinarie Rule of 3, by one number.

1 The first sheweth what number of any thing there is in a greater sum. Example, I demand how many pence there is in fortie pound. Answer, the easiest way to doe this is to consider how many pence there is in 2ˢ then translate 2ˢ into a decimall number: then say if 1(1) of a lib. bee 24ᵇ, how many pence is there in 40ˡ, which this figure sheweth 9600ᵇ.

1(1)l. Z 24ᵇ.
40ˡ Z 9600ᵇ.

2 The second sheweth how to bring pence into pounds, and parts of pounds, which is done thus: If 24ᵇ be 1(1) of a lib. 9600ᵇ is 40ˡ.

24ᵇ Z 1(1)l.
9600ᵇ Z 40ˡ.

3 The third sheweth, If money is bestowed, what one of that thing is worth after that rate. Example, if 800 yards cost 40ˡ, what will one yard come vnto, which this figure sheweth

800 yar. Z 40ˡ.
1 yar. Z 5(2) of li.

ſheweth $5^{(2)}$ of a lib.

4 The fourth ſheweth, if one ounce wait bee worth 12^{b}, I demand what 100^{l} wait is worth after that rate.

Anſ. As this $625^{(4)}$ oun: $\mathcal{Z}$ $5^{(2)}$ of li. figure ſheweth 100^{l} $\mathcal{Z}$ 80^{l}.

which is firſt to ſeeke out in the table of waits, what one ounce is, which ſheweth it to be $625^{(4)}$ of a pound wait: take that for your firſt queſtion, then finde in your money table what 12^{b} is, which ſheweth $5^{(2)}$ of a lib. for your ſecond queſtion, and 100^{l} for your third queſtion, then multiply and diuide, and your fourth queſtion will be 80^{l}.

Therfore if on ounce be worth 12^{b}, an hundred pound wait is worth 80^{l}.

5 The fift ſheweth, if one quart bee worth 3^{b}, I demand what foure buſhells is worth after that rate?

Anſw. Which is to be found out, as the laſt example, as this figure ſheweth,

$3125^{(5)}$ of buſh. $\mathcal{Z}$ $125^{(3)}$ of lib.

4 buſh. $\mathcal{Z}$ $16^{(1)}l.$

Therefore if one quart be worth 3^{b}, foure buſhell is worth $1^{l}12^{s}$.

6 If a marke in the ſteme of a tree

that

that ſtands vpright of ſix foot high doth caſt a ſhadow of 105(1) what length is the tree that ſhadoweth 105 foot, which this figure ſheweth 60 foot, 105(1) ſhad. Z 6 foot.
105 Z 60 foot.

To make numbers Aliquot, and how to worke them by the Rule of 3.

Q. *I Demand how many groats there is in 53 pound?*

Anſw. By the reaſon that 4^{b} is not to bee found in my table of ſetting downe, I know it to bee no Aliquot number, therefore I muſt doe by it, as I muſt doe by all other numbers of that nature, which is to triple them, and then they will bee Aliquot, as in our Example, triple 4^{b}, and it makes 12^{b}, then is the number Aliquot: now by reaſon that 4^{b} is found in 12 three times; I ſay by the Rule of 3, if in 5(2) there be 3 groats, there is in 53^{l} 3180 groats, as this figure ſheweth.

5(2)^{l} Z 3 groats.
53^{l} Z 3180 groats.

The rule Reuerſe, or backer rule of 3, with practiſe.

HOw to know when you ſhall worke with this Rule, Is to conſider whether the third number requireth more or leſſe of any thing: for the greater the third number is, the leſſer ſhall be the fourth, and the ſecond and fourth queſtion bringeth fourth one matter, as heereafter ſhall be ſeene.

How to worke this Rule, is to multiply the firſt number by the ſecond, and diuide the product thereof by the third number, and the quotient ſhall bee the fourth number, your deſire: all which is to be ſeene in theſe Examples.

If 100l in three moneths gaines 20l in how many moneths ſhall 200l gaine 20l, worke by the rule before taught, and you ſhall finde that 200l will gaine 20l in one moneth and an halfe, as the figure ſheweth,

100l Z 3 mon: gaines 20l.
200l Z 1 5 (1) mon: gaines 20l.

2 Q. If at 3ˢ 6ᵈ the buſhell of wheat, the penny loafe weies 4ˡ weit and an halfe, how much ſhall the peny loafe weigh at 3ˢ the buſhell? worke by the rule, and you ſhall finde 5ˡ wait and a quarter, as this figure ſheweth,

175(3) of lib. 7 45(1) 1 wait the peny loafe.
15(2) of lib. 7 525(2) 1 weit the peny loafe.

3 Q. If one yard in bredth requireth one yard in length, to make a ſquare yard, what will halfe a yard in bredth require in length to make a ſquare yard; worke by this rule, and you ſhall finde two yards in length, as this figure ſheweth.

Bredth 1(0) of yar. 7 1(0) of yards in length, 1 yard.
Bredth 5(1) of yar. 7 2(0) of yards in length, 1 yard.

I ſet downe theſe eaſie queſtions, that by the ſame reaſon any hard queſtions are wrought.

4 Q. Is, if two men exchange land quantity for quantity; the firſt mans land is in length 40 perches, and in bredth 12 perches (which makes three acres.)

And the ſecond mans land is 60 perches and an halfe in length, the queſtion is to know what bredth you

must haue to make iust that quantity, which this figure sheweth 793(2).

40 per. in len. Z 12 per. in bredth, makes 3 acres.
605(1) Z 793(2). makes 3 acres.

5 Q. A wall is to be hanged with Tapestry, of height 32(1) of yards, and of length 15 yards, and the tapestry is 8(1) of a yard broad: I demand how many yards of that tapestry shall serue to hang this wall, which this figure sheweth 60 yards.

32(1) of a yard high Z 15 yards long.
8(1) Z 60.

6 Q. Is, If of yard & halfe broad, foure yards will make a garment, I demand how many yards of 9(1) broad, will make the like garment, which this figure sheweth 666(2) of a yard and a little more.

15(1) broad: Z 4 long.
9(1) Z 666(2).

7 Q. Is, If six men mowes, walls moines, or doth any thing else in 136 daies. The question is in how many many daies will 34 men doe the same, or the like, which this figure sheweth 24 daies,

6 men

6 mem Z 136 dayes.
34 Z 24.

8 Q. Is, If a quantity of worke be done, the daies being 16 houres: in 18 dayes I demand when the daies bee 12 houres, in how many daies will the like worke be done, which this figure ſheweth 24 daies.

16 houres Z 18 daies.
12 Z 24.

9 Q. Is, If 50 ſheep, horſes, or other cattle doth eat a quantity of any thing in 8 moneths. The queſtion is, how many moneths the like quantitie will ſerue 60 of the like cattle, which this figure ſheweth 6 moneths, and almoſt three quarters of a moneth, or almoſt three weekes, which is all one.

50 cattle Z 8 moneths.
60 Z 6666(3) of moneths.

The proofe of theſe Rules Reuerſe, is to multiply the third queſtion by the fourth, and if the product thereof bee like the product of the firſt and ſecond queſtion you haue done right.

Example, If the fifth queſtion, whoſe height is 32(3) of yards, and the length 15 yards, which being multi-

plied, produceth 48 ſquare yards: So likewiſe multiply 8(1) by 60, and it will be 48 ſquare yards alſo.

The rule Aliquot may be uſed by this rule Reuerſe alſo.

EXample, If at 4ˢ the buſhell, the penny loafe weighs 4ˡ weit: the queſtion is, how many pound wait ſhall the penny loafe weigh, at 4ˢ 4ᵇ the buſhell.

Anſw. The three numbers being tripled, you ſhall finde the fourth number will bee tripled, as this figure ſheweth,

5(1) of lib. — 12ˡ weight.
65(2) of lib. — 11076(3)ˡ.

Then diuide 11076(3) into three equall parts, and the quotient will be 3692(3), which is 3ˡ, and almoſt three quarters, that you muſt haue for one loafe, the corne being at 4ˢ 4ᵇ the Buſhell.

Otherwiſe, reduce your ſhillings into pence, and then may you worke it by the ordinary Rule Reuerſe, as by the laſt Example, 4ˢ being reduced into pence, is 48ᵇ, and 4ˢ 4ᵇ is 52ᵇ. The

ſay

ſay if at 48ᵇ the buſhell, the peny loafe weighes 4ˡ, at 52ᵇ the buſhell, the peny loafe muſt weigh 3ˡ and almoſt three quarters, as this figure ſheweth,

48ᵇ Z 4ˡ weight. the peny loafe.
52ᵇ Z 3692⁽³⁾. the peny loafe.

The double Rule of 3, or Rule of 3 compoſed with time.

12. IS, If 100ˡ in 12 moneths doe gaine 15ˡ, what will 60ˡ gaine in 8 moneths?

Anſw. Firſt multiply 100ˡ in his time, 12 moneths, and thereof commeth 1200 for your diuiſor, then ſet downe 15ˡ your gaine for your ſecond number: then multiply 60ˡ in his time 8 moneths, and therof commeth 480 for your third number: then worke by the ordinary Rule of 3, and it will bring forth 6ˡ for the gaines of 60ˡ in 8 moneths, as this figure ſheweth:

100ˡ in 12 moneths gaine 15ˡ.
60ˡ in 8 moneths gaines 6ˡ.

1200 Z 15ˡ.
480 Z 6ˡ.

The double Rule of 3, with fellowship without time.

2 Q. TWo Marchants haue laid their money in companie, the first layd in 30^{l}, the second layd in 40^{l}, and with occupying they haue gained 20^{l}. I demand how much each man shall haue of the same gaine, according to the money that is laid in.

Answ. Adde 30^{l} and 40^{l} together, which are the summes that they both layd in, and thereof commeth 70^{l}, for the common diuisor, then say by the rule of 3; If 70^{l} gaine twenty 20^{l}, what shall 30^{l} gaine which is the first mans money, worke as you see in the figure following and you shall finde 857$^{(2)}$ of lib. for the first mans part of gaines, then say againe if 70^{l} gaines 20^{l}, what will 40^{l} gaine, this figure sheweth 1143$^{(2)}$ the laying in.

	70^{l}	Z	20^{l}.
the first man	30		857$^{(2)}$ of lib.
the second man	40	—	1143$^{(2)}$ of lib.
proofe	70	pr.	2000$^{(2)}$ of lib.

The

The double rule of 3, with fellowship without time.

3 Q. IS, Senen Marchants fraited a barke of 73 tuns and a quarter, the first man laid in 7 tuns and a quarter, the second man 18 tuns, the third man 10 tuns and an halfe, the fourth man 13 tuns and a quarter, the fifth man 12 tuns and a quater, the sixth man 11 tuns, and the seuenth man 1 tun, and they are to pay 19^{l} 9^{ss}. I demand what each man must pay to his part? worke as you did the last example, and the figure will be thus,

	7325$^{(2)}$ of tuns	Z	1945$^{(2)}$ of lib.
1 mans	725$^{(2)}$ of tuns	Z	19251$^{(4)}$ of lib.
2 mans	1800		47795.
3 mans	1050		27880.
4 mans	1325		35182.
5 mans	1225		32527.
6 mans	1100		29208.
7 mans	100		2655.
Proofe	7325		194498$^{(4)}$ of lib.

4 Q. There is a Common taken in of 140 acres, which is to be diuided betwixt seuen tenements: which haue

haue in land betwixt them 426 acres in seuerall; The question is, what euery man is to haue according to the proportion of their seuerall land: The first tenement hath 150 acres, the second 101, the third 55, and the other foure hath 30 acres a piece; I demand what euery tenement must haue, which this figure sheweth,

	426 acres in sev.	Z	140 acres in com.
1 mans	150		493 (1) of acres in c.
2 mans	101		328.
3 mans	55		180.
4 mans	30		98.
5 mans	30		98.
6 mans	30		98.
7 mans	30		98.
Proofe	426		1393

Of the square and Cubique Root.

How to extract the square root, and to finde the signes of any number.

IS first to pricke a pricke vnder euery second figure thus $6^{2}5^{(2)}$, then finde out a digit that will neerest (multiplied

tiplied in himselfe) eat out your 6 on the left hand of your number, which in this Example is 2, set that 2 in your quotient, then say two times 2 produceth 4, take 4 out of 6, and two remaineth, then double your quotient, and set it betwixt the two pricks, as you see in the figure, then finde out the digit that will eat neerest 22, being multiplied by 4, which is 5, then set 5 in your quotient, and also in the next roome to 4, then say fiue times 4 is 20, and fiue time 5 is 25, which hath eaten out $625^{(2)}$ therefore the quotient is the square root: so take halfe of the latter signe of the number giuen, is alwaies the latter signe of the root:

```
 2
 ·
 625(2
 · ·
  4
```

```
 2 (2)
 625(25(1)
 · ·
  45
```

The proofe of this is to multiply the quotient by himselfe, and if the product is your summe againe, adding the remainder, if there bee any, you haue done right. Likewise, in the extraction of the Cubique root, the third part of the latter signe giuen, shall bee alwaies the signe of the root.

To

To finde the Cubique Root.

IS a number, which being multiplied in it selfe, and the product thereof being againe multiplied by the first number, doth make a Cubique or Corporall number, hauing both length, bredth, and depth; Example, twelue times 12 is 144, multiplied by 12 is 1782, and so of all other, As this table following sheweth both the Square and Cubique numbers.

Roots	Square	Cubique	
1	1	1	They that are desirous to learne more concerning the Extraction of vulgar roots, I refer them to Mr. Blundiuils exercises of Arithmeticke, in the 24. 25, and 26 chapters.
2	4	8	
3	9	27	
4	16	64	
5	25	125	
6	36	216	
7	49	343	
8	64	512	
9	81	729	
10	100	1000	
11	121	1331	
12	144	1728	
13	169	2197	
14	196	2744	
15	225	3375	
16	256	4096	
17	289	4913	
18	324	5832	
19	361	6159	
20	400	8000	

How

How to worke the yeerly increaſe of 100^{l}, *yeelding at the yeeres end* 10^{l} *in the* 100^{l}, *you haue no more to doe, but to ſet the ſame number in the ſecond place, and then adde the principal and the vſe together, and you haue your deſire, as you may ſee in theſe Examples.*

THE ſtocke 100^{l}.
Increaſe 10.

The firſt yere p. 110.
in. 11.

The ſecond, p. 121.
in. 121$^{(1)}$.

The third, p. 1331.
in. 1331$^{(2)}$.

The fourth, p. 14641.
in. 14641$^{(3)}$.

The fifth, p. 161051.
in. 161051$^{(4)}$.

The ſixth, p. 1771561.
in. 1771561$^{(5)}$.

The ſeuenth, p. 19487171.

I neede not giue no more examples of intereſt, the worke being ſo eaſie, for

for the intereſt is the very ſame number that the principall is, ſetting it one place further, or increaſing one vnite of the ſigne, which is all one: The reaſons I haue ſhewed before, for in taking away one vnite of a ſigne, it multiplieth the number by 10, and increaſing one vnite of a ſigne, it makes the number 10 times leſſe, which is one tenth part. Example, in the third yeere the principall is 1331(1), and the intereſt 1331(2). I could ſhew infinite other examples; but I hold I haue ſhewed ſufficient, being that there is no rule in any other Author, but may bee moſt eaſily wrought by the rules formerly ſhewed: and as this is accepted, I ſhall bee the more willing heereafter to ſhew more queſtions that hath not yet beene vpon this Decimall Art.

(*.*)

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FINIS.